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ABSTRACT

The Alaska Governor's Council reviewed audited reports submitted by local school districts and other reports supplied by the state Department of Education and held discussions with vocational education administrators across the state to determine what happened to vocational education during the 1980s and to make recommendations for the future. The study found the following: (1) fewer secondary students have enrolled in vocational education programs since 1987; (2) expenditures for vocational education programs have declined for the last 4 years; (3) vocational expenditures have decreased as a percentage of the total amount expended for education; and (4) school districts have not adhered to the "added cost" tenets under the public school foundation program, leaving vocational education underexpended. Policy recommendations were as follows: (1) Alaska should adopt a policy that all high school graduates be prepared for immediate employment and/or postsecondary education; (2) high school students should have a year (grade 13) to complete a vocational program after high school; (3) academic and vocational skills should be integrated in the state's high school curriculum; (4) technology education programs should be expanded to grades 7 and 8; (5) categorical expenditures for vocational education should be made mandatory; and (6) the state should provide grants to school districts to provide programs for at-risk youth. (Estimated costs for implementing each of these policy initiatives are provided. An appendix lists critical skills, values, attitudes, and competencies and 11 resources.) (KC)

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what price QUALITY?

November 1990

JOBS [redacted] COST

Technology

Training VOC. ED. ADDED

EMPLOYMENT

[redacted] Youth

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Governor's Council on Vocational and Career Education

Biennial Evaluation Report

November 1990

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Introduction

Nearly every Alaskan youth, male and female alike, will one day become a part of the workforce. Their success will depend largely on how well they were prepared in their formal education, no matter when they elect to enter the workforce — whether it be after high school, vocational/technical training, two- or four-year college, or after graduate work.

The workplace is changing tremendously and is projected to be in a continual state of change in coming years. Small, incremental changes have given way to exponential rates of change. The growth of scientific knowledge alone will mandate rapid changes in the workplace. In fact, it is estimated that the "half life" of information is now down to five years: with obsolescence of previous knowledge and creation of new knowledge requiring a person to learn or re-learn half of what they need to know every five years to be productive in tomorrow's rapidly changing workplace.

The new technologies created from this increase in knowledge, along with sophisticated quality controls, increased customer service, "just-in-time" productions, participatory management, and a mix of yet-to-come economic and demographic forces, have created a "human resource deficit that threatens U.S. competitiveness and acts as a barrier to individual opportunities for all Americans." (American Society for Training and Development.)

To respond to these changing societal needs, America's educators were first called to action in the early 1980's with the publication of "A Nation At Risk: The Imperative for Educational Reform." Since then literally hundreds of other reports, studies and papers have addressed various elements of reform. The authors of these studies and papers have differed significantly in their solutions to this pressing problem. One of the more conservative positions calls for a single secondary curriculum for all students, eliminating all electives except the choice of which foreign language to take. The more liberal positions promote expanding the curriculum to meet the individual needs of each child. While major differences exist

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among the various positions, two common threads are found in most of the studies and papers. They are the need for more **structure** and the need to provide more **substance** in our public school curriculum. These threads can be used to strengthen the delivery of education and to provide a workforce that can accommodate the significant increase in change projected for the 1990's and beyond.

The reformers, particularly those from the private sector, are virtually unanimous in their view that schools need to help students develop workforce readiness. Exactly which curriculum or methodology does that, is debated. Some refer to vocational education, some call it occupational education, technology education, or even the "new basics." Others refer to the more general issue of "application of basic skills."

What vocational educators and advocates know, is that those concepts are exactly the basis of vocational education since its inception in the public schools in 1917. It has strived to provide students with the skills necessary for entry into jobs requiring less than a four-year baccalaureate degree. However, with the workforce changing, the physical skills once essential to agrarian and industrial societies have given way to intellectual and interpersonal skills needed for a technological, information-based society. This new workforce needs to be technologically literate, grounded in the "basics," and more adaptive to inevitable and rapid change as we move into the 21st Century.

The Governor's Council on Vocational Education has long recognized these changes occurring in our society and the challenges they place on vocational education. The Council has raised major questions about whether vocational education in Alaska is meeting those challenges of change, and whether or not our schools are utilizing their vocational education component to prepare their students for the world of work.

To begin to answer those questions, the Council decided to investigate what has happened to vocational education in the decade of the 80's. Through a review of the audited reports of school districts and other reports supplied by the Department of Education, and in discussions with vocational education administrators across the state, it was discovered that within the past decade that:

Fewer students have enrolled in secondary vocational education programs;

Vocational education expenditures have decreased as a percent of the total expended for regular instruction;

Vocational education expenditures have decreased as a percent of the total expended for K-12 education;

Expenditures for vocational programs have declined the last four years of the decade, with FY 1989 expenditures mirroring those of FY 1982; and

School districts have not adhered to the "added cost" tenets of the vocational education unit under the Public School Foundation Program, leaving a total of $9.5 million under-expended for added cost items in fiscal years 1988 and 1989.

It is the intent of this report, *"What Price Quality?"*, to look at vocational education in the context of the Public School Foundation Program, and to provide recommendations, if implemented, that would profoundly restructure the way vocational education programs are delivered and the way schools educate our

young people. The report is comprised of four sections: *"The Formula"* looks at vocational education in the context of the current Public School Foundation Program; *"The Reality"* investigates what has actually happened under the new formula; *"The Vision"* forwards specific recommendations to Alaska's policy makers to reform vocational education in Alaska; and the last section, *"What Price Quality"*, looks at the fiscal implications of the Council's recommendations.

A recent report, "America's Choice: High Skills or Low Wages?", found that:

> *No nation has produced a highly qualified technical workforce without first providing its workers with a strong general education. But America invests less in its front-line workforce than the major countries with which we compete. We expect less in school. We give young people less initial job training. Yet these are the very people the nation must count on to lead the way to a competitive and productive economy.*
>
> *The choice that America faces is a choice between high skills and low wages. Gradually, silently, we are choosing low wages.*
>
> *We still have time to make the other choice — a choice for high skills, not low wages. To make this choice, we must fundamentally change our approach to work and education.*

The Governor's Council wants our youth to become leaders in the technological revolution; our businesses to achieve increased productivity; and our state to have a robust economy that will have a provocative impact on other Pacific Rim economies. We believe the recommendations embodied in this report, if implemented, will bring about a necessary first step in restructuring secondary education.

The Formula

To look at vocational education programs in the context of the Public School Foundation Program is to view a kaleidoscope of four different approaches to funding Alaska's public schools. In Territorial days the public schools were funded based on the number of teachers in each district, with a host of different factors contributing to the value of a "teacher unit."

After Statehood, and until 1983, the foundation support program allocated revenue based on funding units with set-aside provisions for vocational, bilingual and special education programs based on student enrollment figures.

In 1983 the Alaska State Legislature suspended the previous program, replacing it with an average daily membership formula, or ADM. Under this formula a district received a yearly appropriation from the state legislature, whose value was determined each legislative session for the subsequent year. The ADM formula did not directly appropriate revenue to districts for the traditional set-aside programs as done previously.

In 1987 the legislature established the current Public School Foundation Program, which distributes revenue to school districts based on an instructional unit approach, with each unit representing the dollars necessary to provide basic educational programs to Alaska's young people. The basic program is comprised of elementary and secondary instructional units, with the revenue generated by all K-12 students designed to cover the costs associated with: providing teaching, administrative and support staff; housing students in school facilities (heat, utilities, etc.); and the necessary supplies and materials to provide basic educational programs. Or in other words, the basic costs of educating our children. In addition, special program schedules were developed to recognize the incremental cost, or "added costs," associated with providing special education, bilingual/bicultural education, and vocational education programs.

For further explanation of the added cost provisions in the current foundation program, the Governor's Council would draw reference to a memorandum to Governor Steve Cowper, dated January 12, 1987,

from the Program Budget Analyst for the Division of Budget Review in the Office of Management and Budget, which states:

> *Special program schedules have been developed to recognize the incremental cost of providing special education; bilingual/bicultural education; and vocational education. The Special education schedule utilizes resource criteria established by the Department special education staff and recognizes the different costs associated with intensive care programs, resource room, and gifted and talented program enhancements. Bilingual/Bicultural schedules treat only A and B students (defined by federal law for students where English is not the primary language). Bilingual funding is based upon a resource room delivery and corresponds to the special education resource room schedule. Vocational education schedules recognize the increased costs of materials and equipment in high cost vocational education programs, recognizing that secondary program schedules have been developed to provide resources based upon lower pupil/teacher ratios in secondary schools.* [Emphasis added.]

As developed by the Office of Adult and Vocational Education/Department of Education, in conjunction with the consultant developing the foundation program, the added cost formula for vocational education was based on equipping and operating a vocational program for one school year. The components factored into the added cost formula for vocational programs are as follows:

Equipment Replacement:	1/5 of the total equipment needed using an amortization schedule of 5 years;
Equipment Maintenance:	Figured on all vocational equipment for one year;
Student Supplies:	Student supplies for one class for one year;
Instructional Materials:	Instructional materials for one year; and
Additional Utilities:	Figured at $.81 per square foot.

As a result of these added cost items, the vocational education instructional unit was established as follows:

> **AS 14.17.043. Vocational education instructional units.** Vocational education instructional units for vocational education courses approved by the department are calculated as the sum, for all of those courses in the funding community, of the products obtained by multiplying 0.05 by the ADM full-time equivalent of the course, and then by the cost weighting factor for the course determined under department regulations.

Subsequent to the passage of the Public School Foundation Program by the Alaska State Legislature, and concurrence by Governor Cowper, the following cost weighting factors for vocational education programs were assigned in 4 AAC 51.340: Is now a factor of .5 for all.

(1) A factor of .2 will be assigned to the following programs: health, consumer and homemaking, horticulture, commercial art, clothing and textiles, general marketing, food production, natural resources, forestry, agriculture services and supplies, transportation and travel, wildlife management, business management, child care management, and surveying;
(2) A factor of .4 will be assigned to the following programs: aircraft mechanics, communication technologies, commercial photography, agriculture mechanics, accounting, small engine mechanics, and automotive body repair.
(3) A factor of .6 will be assigned to the following programs: agricultural production, welding, industrial education, woodworking, automobile mechanics, electrical technician, drafting, fisheries, and diesel engine mechanics.

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(4) A factor of .8 will be assigned to the following programs: graphics, secretarial and word processing, and construction trades.

Thus, the added cost provision of the vocational education unit was designed to fund those excess costs necessary (defined as equipment replacement and maintenance, student supplies, instructional materials and utilities), above those already factored into the secondary basic unit to provide Alaskan youth quality vocational education programs.

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The Reality

What has happened to vocational education in the decade of the eighties? Through a review of audited reports submitted by local school districts and other reports supplied by the Department of Education, and in discussions with vocational education administrators across the state, the Governor's Council offers the following findings on vocational education enrollments and expenditures over the past decade.

FINDING: FEWER SECONDARY STUDENTS HAVE ENROLLED IN VOCATIONAL EDUCATION PROGRAMS SINCE 1987.

Discussion: In 1987 there were 26,006 secondary students enrolled in vocational education programs. Each year since 1987 the enrollments have decreased, with a 16% decline experienced between FY 1987 and FY 1990. (See Figure 1.)

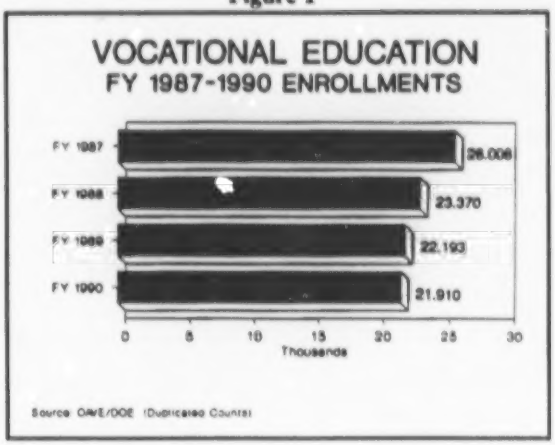
One of the factors contributing most heavily to this decline is the increase in graduation requirements seen most heavily in the latter years of this decade. The increased requirements left high school students with less time for electives, and thereby fewer opportunities to enroll in vocational programs. The impact of increased graduation requirements was more strongly felt in Alaska's smaller school districts where an already limited number of electives were replaced by required classes to respond to the increased demand for non-elective classes.

A second factor involves the shift in the Public School Foundation Program to the added cost model. Under the added cost model, less revenue was generated for vocational programs. This decrease found school districts cutting back the number of vocational programs offered to students.

These two factors, when viewed together, contributed heavily to the decrease in student enrollment in vocational programs.

Note: Enrollment data is not available prior to FY 1987.

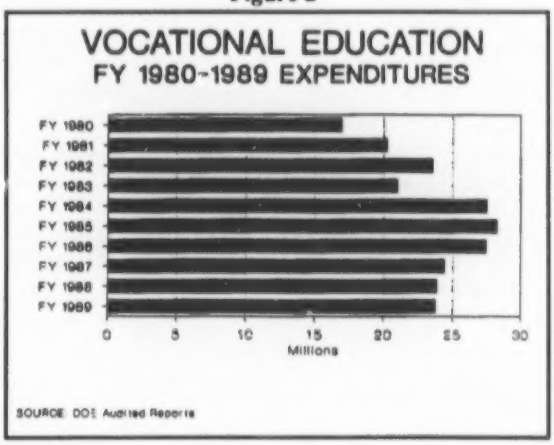
Figure 1



FINDING: EXPENDITURES FOR VOCATIONAL EDUCATION PROGRAMS HAVE DECLINED THE LAST FOUR YEARS OF THIS DECADE.

Discussion: As can be graphically seen in Figure 2, expenditures for vocational education increased until the mid- 1980's, with expenditures reaching a high of $28.3 million in FY 1985. In FY 1986 expenditures began a steady decline, ending at $23.7 million in FY 1989: only $208,000 above expenditures reported in FY 1982. While it is important to remember that we are looking at three funding schemes for public education in this past decade, the fact still remains that vocational education expenditures have been declining.

Figure 2



FINDING: VOCATIONAL EDUCATION PROGRAM EXPENDITURES HAVE DECREASED AS A PERCENT OF THE TOTAL AMOUNT EXPENDED FOR REGULAR INSTRUCTION, AND AS A PERCENT OF THE TOTAL EXPENDED FOR K-12 EDUCATION.

Discussion: In analyzing the audited reports for Alaska's school districts for FY 1980 to 1989, and as viewed in Figures 3 and 4, not only have total vocational education expenditures decreased, but they have decreased as a percent of the total amount expended for regular instruction and as a percent of total expenditures. For a better understanding of these figures, "regular instruction" excludes expenditures made for vocational education programs, special education instruction, correspondence programs, pupil and instructional support services, general support services, operation and maintenance, pupil transportation and non-program charges. "Total expenditures" includes all of the previously mentioned categories, and expenditures for "regular instruction."

Figure 3

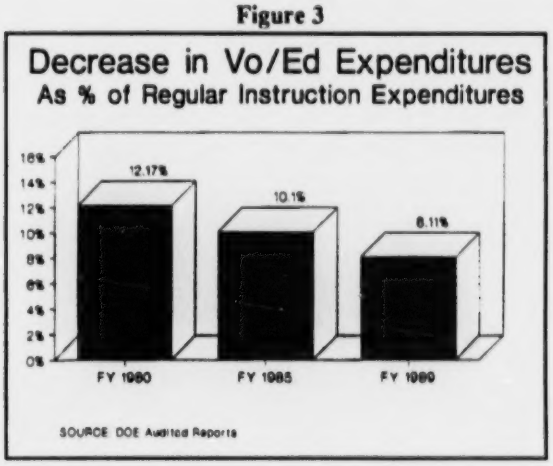
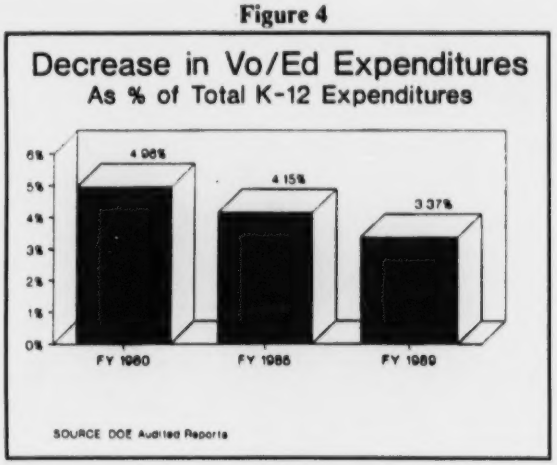


Figure 4



FINDING: SCHOOL DISTRICTS HAVE NOT ADHERED TO THE "ADDED COST" TENETS OF THE VOCATIONAL EDUCATION UNIT UNDER THE PUBLIC SCHOOL FOUNDATION PROGRAM, LEAVING A TOTAL OF $9.5 MILLION UNDER-EXPENDED FOR ADDED COST ITEMS IN FISCAL YEARS 1988 AND 1989.

Discussion: With the operational definition that "added costs" for the vocational education provision include only those costs associated with equipment replacement and maintenance, student supplies, instructional materials and additional utilities, the Council began reviewing school district's audited reports to see how vocational revenues were being spent. The years chosen for this analysis were FY 1988 and FY 1989, as these are the only two years yet reported under the added cost formula.

After completing its review the Council expanded its operational definition of added cost to include the following items accounted for in the audits:

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Figure 5

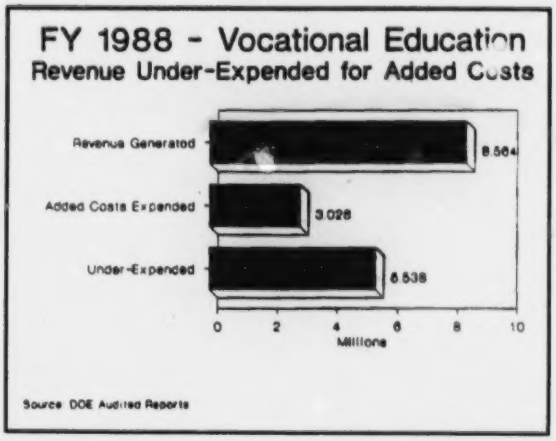


Figure 6

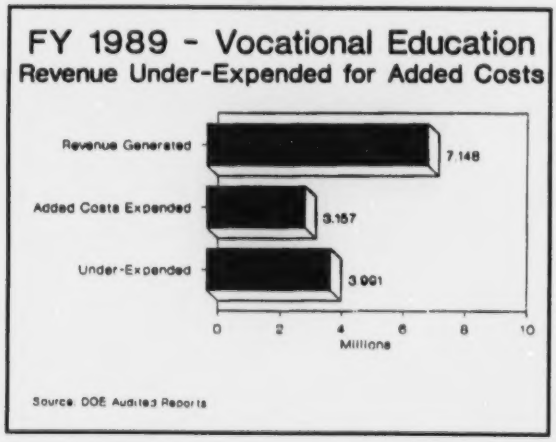
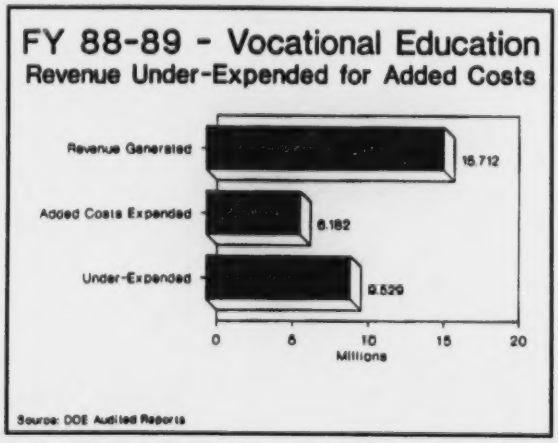


Figure 7



Student supplies, instructional materials (including small tools and equipment), and media;
Equipment replacement, repair and maintenance;
Professional and technical services;
Other purchased services and stipends;
Travel and field trips;
Additional Utilities; and
Other costs such as insurance bonds and premiums, rentals, gas and oil, communications, construction, and dues and fees.

For the purpose of this report, the only expenditures not operationally defined as added costs are those relating to staff salaries and benefits.

The results of the Council's review of the audited reports can be graphically viewed in Figures 5 and 6. As can be seen, $5.538 million was left under-expended for vocational education added costs in FY 1988, and $3.99 million in FY 1989. This leaves a total under-expended for vocational education added costs of $9.5 million for both fiscal years. (Figure 7.)

This should leave the reader with two basic questions.

First, if school districts are charging personnel and benefit expenditures against vocational education's added cost formula, is there adequate revenue being generated in the secondary unit to cover the basic costs of housing and staffing Alaska's secondary students? The answer is probably not, or school districts would not be reporting their expenditures as they are. And given recent budget cuts in the Public School Foundation Program by Governor Cowper, the problem of under-funding the basic unit is even greater.

The second question is to what benefit should the $9.529 million in under-expended revenues be used? For the answer to this question the Council would refer the reader to the next section of this report..... "The Vision."

The Vision

To answer the question posed in the preceding section, "To what benefit should under-expended revenues be used?", the Governor's Council would offer the following six recommendations:

POLICY FOR PUBLIC EDUCATION

THAT THE STATE OF ALASKA ADOPT AND IMPLEMENT A POLICY THAT ALL RECIPIENTS OF A HIGH SCHOOL DIPLOMA BE PREPARED FOR IMMEDIATE EMPLOYMENT AND/OR POSTSECONDARY EDUCATION.

GRADE 13

THAT THE STATE OF ALASKA ENACT LEGISLATION ALLOWING HIGH SCHOOL STUDENTS THE OPPORTUNITY TO COMPLETE A VOCATIONAL EDUCATION PROGRAM AFTER HIGH SCHOOL GRADUATION.

INTEGRATION OF ACADEMIC AND VOCATIONAL EDUCATION

THAT THE STATE OF ALASKA MEET THE CHANGING NEEDS OF THE WORKFORCE BY REQUIRING THE INTEGRATION OF ACADEMIC AND VOCATIONAL SKILLS IN ALASKA'S SCHOOLS.

TECHNOLOGICAL LITERACY

THAT THE STATE OF ALASKA ENACT LEGISLATION EXPANDING STATE ELIGIBILITY FOR APPROVED TECHNOLOGY EDUCATION PROGRAMS IN GRADES SEVEN AND EIGHT.

AT RISK YOUTH

THAT THE STATE OF ALASKA ENACT LEGISLATION CREATING A COMPETITIVE GRANT PROGRAM TO CHALLENGE SCHOOL DISTRICTS TO DEVELOP PROGRAMS FOR AT RISK YOUTH.

CATEGORICAL EXPENDITURES

THAT THE STATE OF ALASKA ENACT LEGISLATION MANDATING CATEGORICAL EXPENDITURES FOR VOCATIONAL EDUCATION UNDER THE PUBLIC SCHOOL FOUNDATION PROGRAM.

Below please find comments on each of the recommendations.

RECOMMENDATION: POLICY FOR PUBLIC EDUCATION

THAT THE STATE OF ALASKA ADOPT AND IMPLEMENT A POLICY THAT ALL RECIPIENTS OF A HIGH SCHOOL DIPLOMA BE PREPARED FOR IMMEDIATE EMPLOYMENT AND/OR POSTSECONDARY EDUCATION.

PROBLEM: Two significant changes are challenging the educational system as we begin the 1990's: the changing requirements of the world of work, and the new demographics of our students. While the workplace is demanding employees equipped with higher levels of knowledge and more sophisticated skills, the number of students who live in poverty, who return after school to empty homes, who speak limited English, who find themselves teenage parents, or who are exposed daily to drugs and other dangers is on the increase. The greatest challenge facing education is the urgent need to raise expectations of all students — including those whose environment places them at risk of failure. We neither can afford to produce graduates who cannot complete a job application, nor graduates who must begin their higher education program with remedial reading or math instruction.

DISCUSSION: For many years the primary purpose of education was to prepare students for postsecondary education. Preparation for employment was a secondary concern since most entry-level jobs in the predominantly industrial economy required skills that could be easily imparted through on-the-job training. This is no longer the case. Today's widespread use of sophisticated technologies demand employees possessing higher levels of knowledge and more sophisticated skills. Thus, schools are discovering that they must give equal attention to preparing students for employment and postsecondary education — and given increasing global competition, they must prepare them well.

Implementation of this policy is intended to:

* Raise performance expectations for all students in the "Four R's", reading, writing, arithmetic and ready to work competencies;
* Require all students to have an in-depth concentration in one or more subject area, at least sufficient to prepare them for work or continuing education;
* Incorporate the "expanded basics," such as problem solving skills, human relations, information systems, organizational skills, and personal skills, into all educational experiences;
* Base performance expectations more closely on what students need to know, and need to be capable of learning and doing, in order to succeed in the workplace or in college;
* Shift the educational system's focus from procedures to outcomes, assessed in terms of what students can actually do;
* Involve representatives of business and higher education to determine the range of skills, knowledge and attitudes our graduates need to possess; and
* Create a comprehensive awareness program to help everyone connected with schools — teachers, administrators, school board members, employers and parents — understand the pressing need to raise our expectations.

Preparing high school students for employment is certainly not a new concept to Alaska, but is rather like The Emperor's New Clothes. In fiscal year 1989 over one-hundred chief executive officers, personnel directors and other employer representatives met at the request of Governor Steve Cowper and the State Board of Education to discuss what they could do to assure that high school graduates have the skills, attitudes, values and confidence necessary to meet the challenges and changes of life and the work place. This coalition of private and public employers became the "Alaska's Youth: Ready for Work" Coalition, and in July of 1989 adopted the following three goals:

1. To mobilize employers into an alliance with educators and parents that supports schools in doing a better job of preparing youth for work.

2. To make the issues/problems of preparing Alaska's youth to be good employees and productive citizens a priority issue in the state.

3. To demonstrate what can be done through the alliance of employers, educators, and parents by developing personal and corporate commitments to carry out actions that will result in graduating high school students who are well prepared for work.

In its efforts to define what was meant by "ready to work," the Coalition developed the following list of critical skills and competencies, values, and attitudes that they felt were necessary for Alaska's young people to be ready for work:

Critical Skills and Competencies	Critical Values ("Work Ethic")	Critical Attitudes
Reading	Honesty	Accountable/ Responsible/ Committed/ Self-Disciplined/ Shows initiative
Speaking	Good attendance	
Writing	On-time	
Math computation	Dependable/Follows through on assignments	Willing to learn/Pride in doing a good job
Information management and use of technology	Accepts advise and supervision/Able to take criticism	Safety-conscious
Willing to listen	Accurate work/No waste	Handles on the job stress and personal problems well
Knowing how to learn	Adequate output of work	Positive outlook
Knows how to solve problem		Positive self image
Able to apply what is learned		Follows rules
Interpersonal skills/ Teamwork		Good team member
Good manners		Respects others
Applying for a job/ Interviewing skills		Able to postpone gratification

(Note: A complete listing of the skills developed can be found in Appendix A.)

The efforts of the "Alaska's Youth: Ready to Work" Coalition to develop this above list of skills necessary for success in the work place recognizes the fact that workforce readiness skills, the "Fourth R", are not independently learned — they must be taught.

According to the "Alaska's Youth: Ready to Work" Coalition:

> *As employers, our ability to succeed in an increasingly competitive world market and in an environment of rapid technological change will depend upon the quality of our work force and of our citizenry. It is in our interest and in the interest of the country that employers commit to the goal of ensuring that Alaska's young people graduate from high school ready for work and to assume productive roles in society. [Emphasis added.]*

Reorganizing our public schools to place an emphasis on employment skills requires partnerships. Gone are the days where the schools can ignore the needs of employers, the major consumer of our schools' products and the sector of the economy that most often bears the cost of remedying the failures of our education system. Or as Louis V. Gerstner, President of American Express Company so aptly said:

> *No single entity can do it all — not business, not the voluntary sector, not government. But if we all pool our resources, build on our different strengths and expertise, and work together in creative partnerships we can resolve the workforce problems that threaten our prosperity.*

That all recipients of a high school diploma be prepared for immediate employment and/or postsecondary education.

These sixteen words appear a simple statement on the surface, but they are deceptively simple for they have the power to set in motion an era of great change in public education in Alaska. They signal the expansion of the purpose of education to include preparation for employment: putting occupational education on an equal footing with academics. They portend a major restructuring of education — of **what is taught** and **how it is delivered.**

The "Alaska's Youth: Ready to Work" Coalition has taken the necessary first step in this arena. Alaska's policy makers need to build on the Coalition's efforts by implementing the reforms they have so carefully developed. If this recommendation is enacted, a diploma from an Alaska school district would be more than just a certificate of attendance — it would signal a certificate of ability.

RECOMMENDATION: GRADE 13

THAT THE STATE OF ALASKA ENACT LEGISLATION ALLOWING HIGH SCHOOL STUDENTS THE OPPORTUNITY TO COMPLETE A VOCATIONAL EDUCATION PROGRAM AFTER HIGH SCHOOL GRADUATION.

PROBLEM: With the advent of increased graduation requirements, many secondary students find it difficult to complete diploma requirements and take vocational/technical courses which will help them develop skills leading to employment. And in many of Alaska's rural high schools smaller student populations and scheduling restraints yield fewer opportunities for students to complete a vocational/technical program.

DISCUSSION: The Governor's Council, in forwarding this recommendation, feels it would be in the best interest of Alaska's graduates and the Alaska economy to allow high school students the opportunity to complete a secondary vocational/technical program even though they have graduated from high school. This can be accomplished by expanding state aid eligibility to allow school districts to count students enrolled in a post-graduation vocational program in their secondary enrollment under the Public School Foundation Program.

Currently AS 14.03.060 (b) provides school districts the option of establishing one or two grades beyond the 12th grade, but with no additional revenue provided to address the costs associated with offering an educational program beyond high school graduation. This would provide the revenue and allow a district to serve as a broker for students who wish to complete a vocational education program.

Under this recommendation the Public School Foundation Program would be amended to provide state aide to school districts for persons under twenty-one years of age completing a vocational/technical program following graduation from high school. Students would be eligible for this program for two years following the receipt of a high school diploma. Eligible students must have completed one-half credit of vocational/technical instruction prior to receiving a high school diploma, and students would be limited to vocational/technical education programs which are state approved and offered in public institutions such as high schools, rural education centers and statewide technical centers. The amount of aid would be based on program costs up to a maximum level for completion of a vocational program.

Not only would this initiative allow Alaska's graduates the opportunity to complete a vocational/technical program, but it would: serve as an economic catalyst for Alaska's public institutions; allow rural students to take specific vocational courses that are not offered in rural Alaska; provide for more cost-effective program delivery; and at the same time assure higher quality instruction.

RECOMMENDATION: INTEGRATION OF ACADEMIC AND VOCATIONAL EDUCATION

THAT THE STATE OF ALASKA MEET THE CHANGING NEEDS OF THE WORKFORCE BY REQUIRING THE INTEGRATION OF ACADEMIC AND VOCATIONAL SKILLS IN ALASKA'S SCHOOLS.

PROBLEM: The present educational structure is a discipline divided environment. A student goes to English class for fifty minutes then leaves that class and goes to a math class for another fifty minutes, and then leaves that class to go to social studies, etc. This fragmentation of knowledge has caused considerable attention among educators. Nowhere in the school setting are students provided the opportunity to pull all of the parts together.

DISCUSSION: Integrating academic and vocational skills is one of the most fundamental school reforms policy makers can initiate. The need for closing the gap between vocational and academic instruction will become increasingly more essential as the requirements of the workplace become more challenging and technologically complex. Workers of the future must posses higher levels of skills and knowledge in the areas of communications, mathematics, science, technical knowledge, and cognitive skills in order to continue to learn and adapt in a changing work environment.

The idea of linking and improving vocational and academic education is based on the belief that improvement in basic competencies can be achieved by: emphasizing academic concepts through vocational instruction; scheduling more vocational students into higher-level academic courses; increasing the emphasis on applied learning activities in academic classes; and increasing communication, cooperation and coordination among vocational and academic teachers in order to provide the extra help and support students need to succeed.

The Governor's Council recommendation for integration is based on the position that closing the gap between vocational and academic education will increase student motivation for learning. Today too many high school students pursue a vocational concentration that allows them to choose "general" academic courses that do not provide adequate preparation for either employment or some form of postsecondary education. It is a fact that more students would complete higher-level English, mathematics and science courses if completing such courses were expected of them. Today we insist that our "brightest" students — those in college preparatory curriculum — pursue a well-defined structured program of study with few options. However, the students most in need of structure — students in the general and vocational curricula — are provided with the least. The result is that these students wander through a "cafeteria" curriculum of endless choices in which too many spend too much time at the dessert table.

The Governor's Council believes that by forging vocational and academic courses into a more rigorous, interactive and challenging program will more adequately prepare <u>all students</u> for meaningful employment and for success in postsecondary education.

For example: The Southern Regional Education Board in Georgia developed a research project entitled, "Linking Vocational and Academic Education," which "*....found that the general academic curriculum, as it is now carried out in most high schools, is inadequate for preparing youth for either jobs or future learning.*" With the belief that vocational and academic curriculum should be more effectively linked, thirty-six pilot sites in fourteen states (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Virginia and West Virginia) modified their secondary curricula to:

- Teach essential content from preparatory courses in mathematics, science and language arts through an applied process for students in vocational and general programs;

* Create a coherent and challenging program of vocational and academic courses that prepare youth for immediate employment or for postsecondary education while increasing their motivation and learning; AND

* Revise vocational programs to place a high priority on developing basic academic skills that can help produce high school graduates with the necessary skills for further learning on the job or in formal education programs.

As reported in a publication, *"What We Have Learned?"*, the project to date has found that:

* Students have higher reading scores in sites where academic and vocational teachers require them to "Read for Learning;"
* Students have higher math scores if they take higher level courses and if they are required to use math skills in new and meaningful situations;
* Students have higher science scores if they enroll in lab science courses and if learning progresses from the concrete to the abstract;
* The courses students choose in high school are far more important in advancing their achievement than are the number of credits they accrue in a given subject field;
* Students learn more when their vocational teachers stress the academics;
* Higher achieving pilot sites have more students pursuing a coherent and rigorous sequence of vocational and academic courses;
* Many of the vocational students can master higher-level mathematics, communications and science concepts when these principles are taught through an applied or functional instructional strategy;
* Closing the academic and vocational gap requires academic and vocational teachers to communicate and cooperate more; and,
* Expectations affect performance.

There is not one "best way" to integrate academic and vocational education, but a host of models have been developed and successfully implemented in school districts across the Nation. Below please find several approaches integrating academic and vocational education skills, which are listed from the less complex to the more ambitious:

* Incorporating academic competencies (including basic skills) into vocational education courses;
* Combining academic and vocational teachers to incorporate academic competencies in vocational courses;
* Making academic courses more applied or vocationally relevant, i.e. through development of applied academic courses such as Principles of Technology, Applied Mathematics, Applied Communications, Applied Biology/Chemistry, and Applied Geology;
* Implementing horizontal curriculum alignment, i.e. coordinating courses;
* Implementing vertical curriculum alignment, i.e. creating sequences of courses;
* Developing "academy schools," or schools-within-a-school where there is greater opportunity to coordinate and provide sequential learning over time;
* Creating magnet schools or single occupation high schools, such as the High School of Agriculture in Chicago, Illinois;
* Replacing conventional academic departments with departments organized by occupational clusters e.g., business clusters, public service clusters, technology clusters, health clusters, etc.; and
* Mixing teachers from different occupational clusters into professional clusters comprised of students of differing career paths and instructors from differing occupational majors.

Integrating academic and vocational education is one way of overcoming the deficiencies of the American high school. It forces us to recognize the varied capabilities (general and specific, academic and

vocational, manipulative and behavioral as well as cognitive), that successful individuals must possess. Potential results of restructuring today's high schools through the integration of academic and vocational skills are:

* Improving the vocational and professional decisions all students must make;
* Eliminating the "shopping mall" or "cafeteria" high schools;
* Enhancing cooperation among teachers of differing backgrounds;
* Improving teaching methods in both academic and vocational classes;
* Reducing tracking and segregation of students;
* Providing a more general conception of vocational education by replacing job specific training; and,
* Providing better linkages between high school and postsecondary programs.

An integrated approach to academic and vocational education has many advocates. A recent report, *"Training America: Strategies for a Nation,"* by Anthony P. Carnevale and Janet Johnston, states:

> *Employers have long been advocates of an applied pedagogy. They argue that learning that occurs in some fundamental context produces better students as well as better employees.*

If this recommendation is implemented in Alaska's secondary schools, another famous but assailable "wall" may crumble and disappear in the nineties — the "wall" between academic and vocational education. The adaptability of the Alaskan workforce and the health of our economy must see greater integration of academic and vocational education skills.

RECOMMENDATION: TECHNOLOGICAL LITERACY

THAT THE STATE OF ALASKA E[illegible]CT LEGISLATION EXPANDING STATE ELIGIBILITY FOR APPROVED TECHNOLOGY E[illegible]JCATION PROGRAMS IN GRADES SEVEN AND EIGHT.

PROBLEM: Profound changes are taking place in the economy and the labor market of the United States. These developments in turn have far-reaching effects on the skills needed in the workplace and on the educational processes in America's high schools, colleges and universities. In light of what many observers believe is a new era in the society and economy of the United States, policy makers and analysts have become increasingly concerned that the education and training system in this country is not adequate to play its expected role in assuring individual opportunity, in promoting growth and prosperity, and in strengthening the country's ability to compete in an increasingly technological and global economy.

DISCUSSION: While the subject matter of the industrial revolution included mainly the "Three R's", tomorrow's workforce will be working with such technological innovations as lasers, fiber optics, bioelectronics, artificial intelligence, digital coding, micromechanics and plastic composites on a day-to-day basis. The progress of the human race has always been directly linked to the development and management of technology. Although technology has been a powerful force in the history of mankind since prehistoric times, it has never been as pervasive an influence on human culture as it is today.

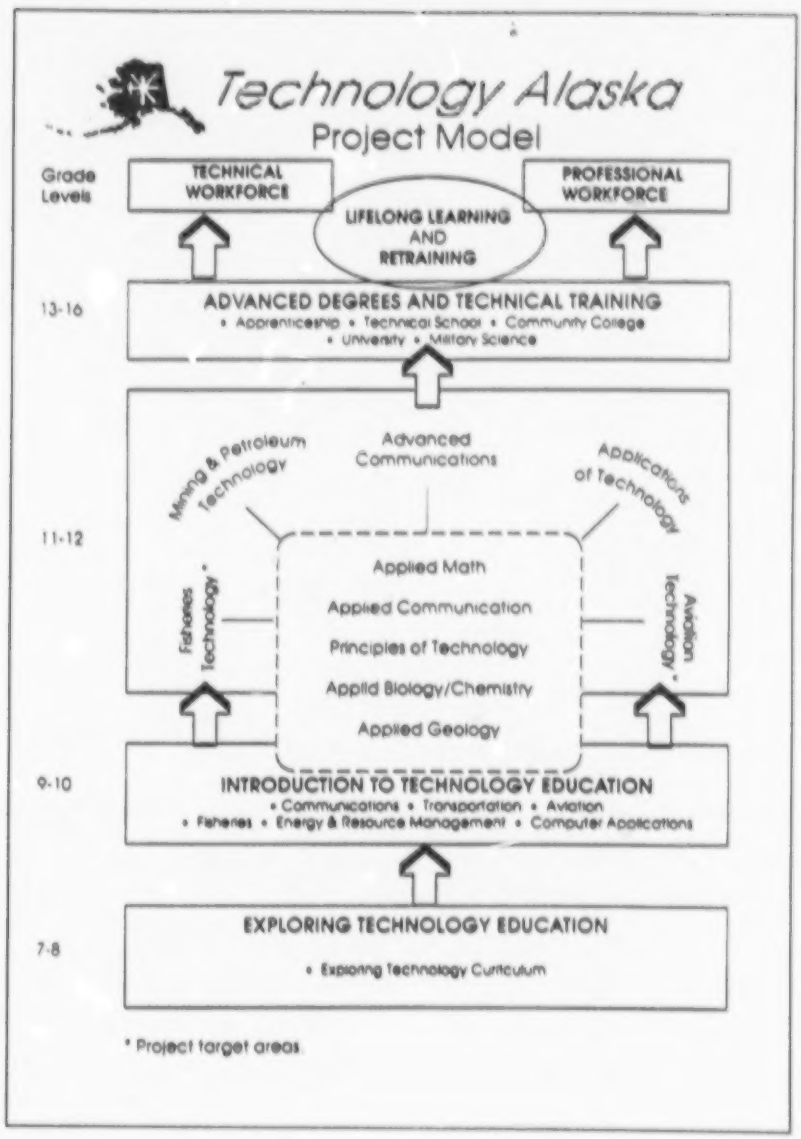
Many of the issues confronting people today, and certainly in the future, involve technological interactions. This integration of technology into society creates complexity and demands that we become technologically literate. Our quality of life can be preserved and improved if we recognize and study how our ecological and technological systems interact. Fundamental education in our society should impart an understanding of the possibilities and limitations of technology in order to assist future citizens to make intelligent decisions and to instill in them a sense of environmental and social responsibility. The control of technology requires knowledge, awareness, decision making and leadership.

People must be taught to develop and control technology responsibly, and people must have the capabilities to determine how technology can be applied to their benefit.

To develop these capabilities Alaska's school districts need to place a greater emphasis on the teaching of technologies. While some high schools offer programs in principles of technology, applied mathematics, applied communications, applied biology/chemistry and applied geology, expansion of technology education to grades 7 and 8 is hampered by state statute, which only provides state funding for approved vocational programs in grades 9-12. To allow the development of approved programs to teach introduction to technology programs in grades 7-8, the Governor's Council would recommend the state enact legislation to expand state aid eligibility for approved technology programs under the added cost model of the Public School Foundation Program.

What would these programs encompass? A model "Orientation to Technologies" Program might resemble the following outline developed by the State Department on New York for their "Introduction to Technology" curriculum for middle grades developed in September of 1987:

Getting to Know Technology
What Resources are Needed for Technologies
How People Use Technology to Solve Problems
Systems and Subsystems in Technology
How Technology Affects People and the Environment



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Choosing Appropriate Resources for Technological Systems
How Resources are Processed by Technological Systems
Controlling Technological Systems
Technology and Society: Now and in the Future
Using Systems to Solve Problems

Sample learning activities involve such topics as: Time: The Fourth Dimension, Plants with One Parent, Model Rocketry, Building an Energy Resource Bank, and Future Visions: Becoming Part of the Solution.

Greater emphasis on teaching technology, and expanding state aid eligibility to programs in technology education in grades 7-8, would bring to Alaska's students the interdisciplinary instruction and knowledge to better compete in the new workplace.

CHARACTERISTICS OF A TECHNOLOGY PROGRAM

A Technology Education program is an interdisciplinary, activity oriented program of studies in which students are provided specific experience and activities designed to develop:

* An understanding of the practical applications of mathematics, science, social studies, language arts, humanities and the arts in a technological framework.
* Skill in the safe and appropriate use and application of basic tools, machines, materials, systems and processes as they apply to the solution of technical problems.
* Skills in communicating ideas and concepts in an effective and efficient manner.
* Observational and critical thinking skills necessary for the development of problem solving and decision making techniques.
* Technological literacy and an understanding of the impact and consequence of technology on their culture and society.
* Attitudes which are necessary to keep pace with a rapidly changing society and an understanding that education is a life long process.
* An awareness of career opportunities in technical areas.

RECOMMENDATION: AT RISK YOUTH

THAT THE STATE OF ALASKA ENACT LEGISLATION CREATING A COMPETITIVE GRANT PROGRAM TO CHALLENGE SCHOOL DISTRICTS TO DEVELOP PROGRAMS FOR AT RISK YOUTH.

PROBLEM: Two significant changes are challenging the educational system as we begin the 1990's: the changing requirements of the world of work, and the new demographics of our students. While the workplace is demanding employees equipped with higher levels of knowledge and more sophisticated skills, the number of students who live in poverty, who return after school to empty homes, who speak limited English, who find themselves teenage parents, or who are exposed daily to drugs and other dangers is on the increase. Well over twenty-two percent of Alaska's students drop out of high school — almost fifty percent in many of America's inner cities. Turning our back on these dropouts is tantamount to turning our back on the future workforce and the future prosperity of Alaska.

DISCUSSION: Many states across America have adopted statewide programs to address the growing problems of our young people. While legislation was passed in the last legislative session addressing many of the problems facing youth, the state still has not developed a comprehensive initiative addressing youth at risk of not completing their education.

A bill was introduced in the last legislative session that proposed a grant program to allow school districts, in cooperation with their communities, to initiate programs for youth at risk of school failure. The legislation defined at risk youth, established a competitive grant program, and made subsequent funding dependent upon program performance standards outlined in the bill. While the bill was not enacted into law, it did embody principles supported by the Governor's Council. The Council would encourage the sponsor and the legislature to "dust off" that legislation and give serious consideration to providing new challenges to Alaska's communities and Alaska's youth.

[NOTE: It is important to note here that the Departments of Education and Community and Regional Affairs have combined federal funds to implement coordinated youth at risk programs, with grants to be awarded in the Spring of 1991. This collaborative effort, designed and implemented by the JTPA Education Coordinating Committee, was in direct response to the business community's efforts in the "Alaska's Youth: Ready to Work" Coalition. While this project is just getting off the ground, it is important to realize that the federal funds dedicated to the current project are scheduled to decrease in subsequent fiscal years. It is the Council's intent that a state-sponsored competitive grant program, as suggested above, would build on the efforts initiated by the "Alaska's Youth: Ready to Work" Coalition.]

CATEGORICAL EXPENDITURES

THAT THE STATE OF ALASKA ENACT LEGISLATION MANDATING CATEGORICAL EXPENDITURES FOR VOCATIONAL EDUCATION UNDER THE PUBLIC SCHOOL FOUNDATION PROGRAM.

PROBLEM: Under the Public School Foundation Program, funds are generated for vocational/technical education based on the added costs of delivering approved vocational programs, yet there is no requirement that those funds be spent on vocational programs.

DISCUSSION: In a period of declining state revenue, it would seem logical that state policy makers would want to assess the fiscal integrity of the Public School Foundation Program. Questions should be asked such as: Is there adequate money being generated by the elementary and secondary "basic" units to deliver a "basic" school program? Is there adequate money being generated for the added cost programs delivering vocational, special and bicultural/bilingual education programs? What modifications should be made in the basic and added cost programs? Is revenue being expended in the areas it is generated or for other, possibly unrelated programs?

If the "added cost" component of the Foundation Program for vocational education is designed as by title — to compensate school districts for the "added costs" of delivering vocational programs exclusive of personnel — then it would seem logical to require that the revenue generated for vocational education be spent on vocational education programs.

In forwarding this recommendation the Governor's Council fully realizes the opposition that will be expressed by school managers, who currently have the freedom to move revenue between different components of the Foundation Program. We understand that need for flexibility. Yet this advantage needs to be weighed against the need for accountability within the Program itself.

The education of Alaska's young people is a designated responsibility of the state under the Constitution of Alaska, and the Public School Foundation Program is the largest line item in the state budget. In a period of declining revenue it is important the state know where its education dollars are being spent, where there are shortfalls, and where revenue might be dedicated to another function. Requiring categorical expenditures would allow state leaders to establish a base-line for future budget development.

In a time when we need to energize and reform vocational programs, much along the lines developed by the "Alaska's Youth: Ready to Work" Coalition, we find vocational funds generated for non-personnel added cost items being spent on personnel costs already covered in the basic secondary unit. That means we are not spending those funds: to recapitalize our secondary vocational education classrooms; to develop a grade 13 option: to integrate academic and vocational education; to expand vocational programs to our seventh and eighth graders; to develop programs for our young people at risk of not graduating; and we are not spending those funds to guarantee Alaska's graduates that after completing twelve years of formal education they will be ready for immediate employment or to pursue a postsecondary education.

"What Price Quality?"

That was the question posed by this report, yet we have not yet addressed the question of quality vocational education programs. There are many different ways to look at quality.

Webster's New World Dictionary defines *"quality"* as *"the degree of excellence which a thing possesses."*

The State Board of Education has defined quality in vocational education by establishing minimum requirements for approved vocational education programs in 4 AAC 51.200 - 4 AAC 51.390. These regulations require each district that offers a vocational program, and elects to receive state aid, to:

1. Submit a vocational education plan;
2. Employ vocationally certified instructors;
3. Develop a plan for inservice training of vocational instructors;
4. Provide all students with an equal opportunity to participate in vocational programs;
5. Include vocational education instructors in the development of individualized educational programs;
6. Adopt a written curriculum for each vocational program;
7. Provide instructional equipment and facilities;
8. Evaluate vocational education programs;
9. Provide for vocational student leadership organizations; and
10. Provide for vocational education guidance and placement.

In March of 1990 the Governor's Council posed the question of quality to vocational administrators from across the state. After lengthy discussion they declared the following as their top five priorities for developing quality vocational education programs in Alaska:

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1. Influence policy makers to increase vocational education funding in the foundation formula, with categorical funding for vocational education, and with financial accountability to ensure vocational education dollars are spent on vocational education programs.
2. Fund vocational education at an earlier level (6th grade) to provide for career exploration and applied academics.
3. Fund adult education programs to ensure "adult enfranchisement."
4. Develop pilot programs in technology education to implement a state technology curriculum which deals with a unified definition of technology.
5. Continue out-of-village programs such as RSVP and Job Corps, and develop regional vocational education/crisis centers.

In the Summer of 1990 the Governor's Council asked the Office of Adult and Vocational Education/ Department of Education to comment on the deficiencies encountered in the local vocational education plans reviewed for the FY 1991 school year. In response, the deficiencies encountered which might serve as a definition of the absence of quality, were listed as follows:

1. Inactive advisory committees.
2. Lack of identifiable leadership in vocational education.
3. No written goals or objectives for vocational programs.
4. Budgets do not adequately address program need.
5. Informal needs assessment with no follow-up.
6. No formal vocational curriculum committee.
7. No specific inservice education planned for vocational teachers and administrators.
8. No budget for equipment purchase, repair or maintenance.
9. No formal evaluation process of vocational education programs or student follow-up.
10. No organized process to provide professional development to guidance counselors.

While one's definition of "quality" no doubt relies heavily on one's values and referent data system, it might be safe to say that for quality to occur there are certain environmental features that must be present. The Governor's Council would support that the minimum requirements adopted by the State Board of Education are examples of environmental features, that if present, would make a program stronger than if they were missing. The Council would also support that adequate money is another environmental feature that would more quickly achieve quality that the lack thereof.

The Governor's Council believes strongly that the six recommendations, if implemented, would achieve greater quality in Alaska's vocational programs than exists today. To achieve that quality we need to look at the cost implications, which are outlined below:

POLICY FOR PUBLIC EDUCATION

THAT THE STATE OF ALASKA ADOPT AND IMPLEMENT A POLICY THAT ALL RECIPIENTS OF A HIGH SCHOOL DIPLOMA BE PREPARED FOR IMMEDIATE EMPLOYMENT AND/OR POSTSECONDARY EDUCATION.

Cost to implement: $10-15 million

Discussion: In a response to the reform movement of the 80's the state decided to increase graduation requirements, while at the same time deciding to de-emphasize programs designed to prepare high school graduates for employment. To reverse this trend revenue will need to be made available for: new equipment; capitalization (building new and remodeling existing facilities); hiring additional teachers, guidance counselors and vocational administrators; developing curriculum; and providing inservice training for existing personnel.

GRADE 13

THAT THE STATE OF ALASKA ENACT LEGISLATION ALLOWING HIGH SCHOOL STUDENTS THE OPPORTUNITY TO COMPLETE A VOCATIONAL EDUCATION PROGRAM AFTER HIGH SCHOOL GRADUATION.

Cost to implement: $1-3 million

Discussion: The cost to implement this program will be determined by the qualifying factors developed in the legislation.

INTEGRATION OF ACADEMIC AND VOCATIONAL EDUCATION

THAT THE STATE OF ALASKA MEET THE CHANGING NEEDS OF THE WORKFORCE BY REQUIRING THE INTEGRATION OF ACADEMIC AND VOCATIONAL SKILLS IN ALASKA'S SCHOOLS.

Cost to implement: $500,000

Discussion: The cost to implement this recommendation would include curriculum development and staff training.

TECHNOLOGICAL LITERACY

THAT THE STATE OF ALASKA ENACT LEGISLATION EXPANDING STATE ELIGIBILITY FOR APPROVED TECHNOLOGY EDUCATION PROGRAMS IN GRADES SEVEN AND EIGHT.

Cost to implement: $4 million

Discussion: Approximately $500,000 will be needed for curriculum and staff development, and $3.5 million to cover all costs associated with extending eligibility to include two additional grade levels.

AT RISK YOUTH

THAT THE STATE OF ALASKA ENACT LEGISLATION CREATING A COMPETITIVE GRANT PROGRAM TO CHALLENGE SCHOOL DISTRICTS TO DEVELOP PROGRAMS FOR AT RISK YOUTH.

Cost to implement: $1 million

Discussion: The cost to implement this program will be determined by the qualifying factors developed in the legislation.

CATEGORICAL EXPENDITURES

THAT THE STATE OF ALASKA ENACT LEGISLATION MANDATING CATEGORICAL EXPENDITURES FOR VOCATIONAL EDUCATION UNDER THE PUBLIC SCHOOL FOUNDATION PROGRAM.

Cost to implement: $3-5 million.

In conclusion, the Governor's Council would urge the Governor, State Board of Education and the Alaska State Legislature to take a careful look at the Public School Foundation Program with an eye on program quality. Any analysis can show what is being done, but it takes leadership to determine what is not being done and to set a course to implement new ideas. We hope this report and its recommendations will stimulate discussion, and of course, subsequent action.

While there is much being done in vocational education in Alaska's secondary schools — there is much more than can be done when one considers we are talking about our future workforce and the future strength of the Alaska economy.

Appendix A

Through its deliberations the "Ready for Work" coalition identified the following critical skills and competencies, values and attitudes that employers felt were necessary for success in the work place:

Critical Skills and Competencies:

Reading	Able to comprehend written material and take appropriate action
Speaking	Basic skill; critical in service industries
Writing	Basic essential skill in higher level jobs
Math computation	Basic essential skills of adding, subtracting, dividing, multiplying, and using fractions and percentages
Information management and use of technology	Familiar with computers and various uses; has keyboarding skills
Willing to listen	Able to comprehend what is said and take appropriate action
Knowing how to learn	Able to teach oneself new skills; able to seek and use new information appropriately
Knows how to solve problem	Can identify source of problem; demonstrates good common sense; is creative, innovative
Able to apply what is learned	Various skills — including the more complex kinds of thinking — such as reasoning, analysis, problem solving; able to apply principles of business
Interpersonal skills/ Teamwork	Able to work as a productive team member; able to share information
Good manners	Courtesy and respect toward others
Applying for a job/ Interviewing skills	Able to complete application properly and prepare a resume; able to communicate during interview

Critical Values (the "Work Ethic"):

Honesty	Is truthful and will not take from the company
Good attendance	Can be depended upon to be at work; absences from work are only for very good reasons, such as illness or death in family
On-time	In the building at their work station ready to start work on time
Dependable/Follows through on assignments	Will do what asked to do; if can't complete the job, will let someone know so that there are no surprises about work not being done

Accepts advise and supervision/Able to take criticism	Has high self-esteem; takes criticism and uses it to improve job performance; does what is asked
Accurate work/No waste	Is careful and avoids mistakes; if mistakes are made, will correct the errors; pride in work well done; high standards; will report any deviation from company standard
Adequate output of work	Shows initiative; is ambitious; figures out how to get the job done; willing to work as efficiently as possible to get the job done

Critical Attitudes:

Accountable/ Responsible Committed/ Self-Disciplined/ Shows Initiative	Follows rules, but may also figure a better way; is a self starter (does not just do the bare minimum to get the job done; is on time; has good attendance; is loyal to the employer; high self-concept and good self-esteem are the underlying motivation for the employee; self-motivated
Willing to learn/ Pride in doing a good job	Able to respond to rapid change in technology by learning new technology; flexible and willing to take in new data and learn new ways of doing things; doesn't care how many times has to do the job over — will work until he/she gets the job right.
Safety-conscious	Safety is an automatic approach to every aspect of the job; worker takes responsibility for his/her own actions and notices and corrects unsafe situations in the work place; does not always have to be told to use safe procedures; concerned for the safety of others
Handles on the job stress and personal problems well	Can deal with pressure on the job in a positive way which increases effectiveness rather than detracting from efficiency; does not let personal problems interfere with the job, either by distracting the worker at work or be keeping him/her from coming to work and/or coming to work on time
Positive outlook	Able to view the good in a situation and work constructively to solve problems
Follows rules	Performs tasks in the prescribed manner; doesn't break rules but will work to change them if they should be changed
Good team member	Willing to share information, work and credit (praise) with other workers; puts good of the organization above personal desires
Respects others	Good manners; shows common courtesy; appreciates multicultural diversity
Able to postpone gratification	Able to see long-term effects on the job and willing to put in time and effort before expecting a promotion

(These critical skills, values, and attitudes were identified by the Chief Executive Officers, personnel directors and other employer representatives who attended a work session in Anchorage, March 29, 1989.)

Resources

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"Occupational Competencies: A Study of the Vocational-Technical Education Needs for the Food Services and Hospitality Industry and the Automated Business Office Systems Industry," The National Council on Vocational Education, Washington, D.C.; May 1990.

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